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History of Plant Nomenclature

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## XLVII.—\*HISTORY OF PLANT NOMENCLATURE.

M. L. GREEN.

A University graduate with an average knowledge of systematic Botany starting to work in a great Herbarium and given a collection of living or dried plants to name finds himself as it were in a different world. In order to perform his work efficiently he has to become acquainted with the special bibliography of the subject—the different floras and monographs that have to be consulted. Armed with these he sets to work, and attempts to identify one of the specimens. He soon finds that he has to extend his knowledge of botanical terminology in order to make successful use of the keys and descriptions. When at last he succeeds in identifying a species he will probably have to decide which of two or more competing names assigned to it may be the correct one, and this demands a knowledge of Nomenclature, and in particular of the International Rules. Thus a special knowledge of plant nomenclature, terminology and special bibliography is essential for his work.

To the student of plant anatomy, or physiology, still more of cytology or ecology, the work of previous centuries possesses little more than an academic or historic interest, the knowledge of these subjects being comparatively modern, but the growth of systematic botany and nomenclature is traceable back to the distant past, and their origins are lost in the mists of antiquity. Hence a knowledge of the history of the subject is part of the equipment of the complete systematist. In a primitive stage of Society the average individual possesses a far greater hand-and-eye knowledge of plants, than the average civilized man. He has to know the different kinds of roots, grains, fruits and seeds that can be used as food, the plants that yield fibres for making clothing, mats and ropes, those that make good weapons, and the various medicinal and poisonous plants, the latter being of special importance in connection with the manufacture of arrow poisons for hunting and warfare. Each of these plants will bear a special name.

As an illustration of the extensive knowledge of plants possessed by relatively primitive peoples the Menomini Indians of Wisconsin may be cited. According to Huron H. Smith they use about one hundred and twenty different species as medicines and forty-five for food. They had separate names for two critical species of *Amelanchier* which, until quite recently, were not distinguished by botanists.

Primitive man grouped plants into three categories, trees, shrubs and herbs, and this primary systematic division of the vegetable kingdom was retained by botanists for 2,000 years. Even at the beginning of the eighteenth century John Ray, who first recognised the two great classes of Dicotyledons and Monocotyledons, made

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Herbs and Trees his two primary divisions (*Historia Plantarum* 1686-1704), each of which had Dicotyledons and Monocotyledons as subordinate groups.

The earliest names of plants were the common names. A good example is the name clover—the term was used for all plants with a cloven leaf, it was used in fact as a generic name, and the species were distinguished on account of a secondary character such as the colour of the flower, e.g. white clover, red clover, etc. These names are just as much specific as if they were latinised. Again the very old word “pulse” was used to represent all peas, beans, vetches and lentils, and it was restricted to plants with edible seeds belonging to the family now known as *Papilionaceae*. It is obvious that the early botanists did not consider the floral structure at all, in fact they knew nothing about the essential organs of the flower. To them the flower consisted chiefly of the “corolla,” with the result that classification was based only on vegetative characters. Thus all plants with leaves divided into three received the name of *Trifolium*—*Oxalis Acetosella* was called *Trifolium acetosum* both by Dodoens in 1583 and by Bauhin in 1623, also *Menyanthes trifoliata* was called by them *Trifolium palustre*. Very many similar examples could be given.

Scientific names of plants have great advantages over common names. They express relationship, they are international, and they are relatively unambiguous. Common names, on the other hand, frequently give a misleading clue to relationship, e.g. Yellow Loosestrife is *Lysimachia vulgaris* (*Primulaceae*) and Purple Loosestrife, *Lythrum Salicaria* (*Lythraceae*). Again several species of one genus may have entirely unconnected names, e.g. Yellow Pimpernel, Creeping Jenny, Yellow Loosestrife, all species of *Lysimachia*. Common names are also frequently very local—one plant being called by one name in one county and by another in the next. The same name also is given to several quite different plants.

An interesting feature of early botany compared with the science of the present day, is that at least as much attention was paid to the underground parts of the plant as to the leaves and the stem, and that the flower was comparatively neglected. Even in the figures of the early sixteenth-century botanists such as Brunfels and Fuchs, the underground parts of the plants form a conspicuous feature. This was due to the fact that the roots were used in medicine even more than the rest of the plants, and the study of Botany at first practically coincided with the study of medicinal plants.

Botanical grouping began with prehistoric man and has gone on ever since; even in the days of Theophrastus (B.C. 370) there was a certain plant nomenclature.

To study the evolution of modern nomenclature we cannot do better than take some outstanding botanists in chronological order and find out what contributions each one made to it. Nomenclature is so intimately connected with classification, description,

terminology and bibliography, that the gradual development of each of these branches must also be followed in outline.

Theophrastus has been termed the Father of Botany, because he was the author of the earliest extant treatise on the Science. He was born at Lesbos in B.C. 370, and died at the age of 85 in B.C. 285. He studied under Plato along with Aristotle, whose assistant and successor he afterwards became. He was primarily a philosopher and is said to have written 227 separate treatises on Religion, Politics, Ethics, Education, Rhetoric, Mathematics, Astronomy, Logic, Meteorology and Natural Sciences. His wide knowledge of Botany was derived partly from life-long study in his Botanic Garden, and partly from the accounts of exotic plants, given by scientifically-trained observers attached to the expeditions of Alexander the Great.

When reading his "Enquiry into Plants" it is difficult to realise that it was written over 2,000 years ago. His list of the members of the plant—root, stem, branch, twig, leaf, flower, fruit—might almost have come from the pages of a modern work on morphology. He drew a distinction between fibrous and tap roots, and doubted whether corms, bulbs, and rhizomes really ought to be called roots, in spite of the fact that they are underground. He described the aerial roots of the Banyan, and the adventitious roots of the Ivy. His classification of leaves is almost modern. He distinguished the whorled and scattered arrangements, the petioled and sessile condition, the simple and compound types, and the pinnate and palmate arrangements, arriving at the conclusion that the pinnate leaf of the ash, for example, was a single leaf because it fell off as a whole. Before his time the "flower" was merely a *brightly-coloured perianth*. Theophrastus drew attention to a second type of flower—the "capillary"—including those that have conspicuous stamens such as the grape, ivy, and the mulberry. Flowers like the rose, the violet and the lily he called "double" because inside the "leafy" flower, they had a "capillary" flower (Androecium). Both Theophrastus and his predecessors regarded *green perianth* leaves as belonging to the foliage leaves, and it was only many centuries later that they were recognised as forming part of the flower. He distinguished polypetalous and gamopetalous corollas and superior and inferior fruits. His knowledge of fruits and seeds was extensive, and he was aware that the "date stone" was a seed, whereas the olive and the plum, he pointed out, had true stones. He implicitly recognised such groups as families, genera and species, but had no special terms for these categories. Nor did he propose any new systematic nomenclature, but used the common Greek names of the plants about which he wrote.

Very many of these common names have been perpetuated as the scientific names of genera, such as *Acanthus*, *Aconitum*, *Anemone*, *Antirrhinum*, *Aristolochia*, *Arum* and *Asparagus*, to mention merely a selection of the best known beginning with the letter A. Most of

these were names of single species representing genera which were then monotypic. Sometimes he used the name of a common species as a generic name followed by distinctive epithets for each of the other species. Thus *Drys* (proper) was *Quercus Robur*, the common oak; *Drys agria* *Quercus Aegilops* (Valonia Oak); *Drys platyphyllos* *Quercus lanuginosa* (Scrub oak) etc. This system of nomenclature persisted until the beginning of the eighteenth century, and is seen in the works of Rivinus (1652-1723), who for example, called the Garden Chervil, *Cerefolium*, and the other species *C. sylvestre*, etc.

Theophrastus recognised certain of our modern Families such as *Umbelliferae* ("Narthecodes"), *Gramineae* (with *Cyperaceae*, *Palmae*, etc.) ("Calamodes"), *Cichoriaceae* (Compositae with milky juice) ("Cichoriodes"). Altogether he mentions about 500 different species by name.

In reading Theophrastus care should be taken not to attach the modern conception of the term genus to his "genos." He used it in the sense of our word "kind," frequently for what are now called species, as in his account of the different kinds of oak. It can be seen, therefore, that Theophrastus had a very shrewd idea of the value of botanical classification. During the next three centuries he was recognised as the chief authority on Botany.

After Theophrastus the next outstanding figure in the history of Botany was the learned Greek physician, Dioscorides, who flourished some 350 years later, in the time of Nero, about 64 A.D. He was a native of Asia Minor, and travelled very widely in the Mediterranean Region. His fame rests on his great work describing about 600 plants, chiefly medicinal, with their properties and uses. This book was the standard treatise both of Botany and Medicine for over 1,500 years. The plants were grouped according to their properties, but it is evident that he recognised such families as the *Labiatae*, *Papilionaceae*, *Umbelliferae*, *Compositae* and *Solanaceae*.

With the revival of learning at the end of the Middle Ages the physicians of Europe attempted to identify the plants which were growing about them with those of Dioscorides. As many of the species and even some of the genera were different from those of the Mediterranean Region, their efforts were not very successful, and great differences of opinion arose as to the identity of many of the plants described by Dioscorides.

Owing to the absence of recognisable descriptions and figures it is frequently impossible to determine the plants mentioned in their works until 1530, when a new era in Systematic Botany was inaugurated by Brunfels. He published excellent wood engravings of over two hundred German plants along with extracts from Theophrastus, Pliny and others, describing the plants and their uses. Brunfels was born at Mainz in 1464. He was for many years a Carthusian monk, then a schoolmaster and Protestant theologian, and finally a physician. As a botanist he does not rank high, many of his identifications being erroneous, e.g. his identification of *Corydalis* with the

*Aristolochia* of the Ancients. The text of his work is practically a treasury of select quotations from Theophrastus, Dioscorides, Pliny and others, with hardly anything that is original.

The great service, however, which he rendered to Botanical Science was the provision of recognisable pictures of the plants with which he dealt, thus enabling other botanists to identify the species and so placing systematic botany on a relatively firm basis. His classification was based on medicinal properties, so that in some cases he associated widely different plants such as *Anemone Hepatica* and *Marchantia polymorpha* in the same genus. He recognised two species of *Verbena*, *V. mas* and *V. foemina*, the former being *Verbena officinalis*, the common Vervain, and the latter *Senecio vulgaris*, the groundsel. In a German edition published two years later he substituted *Sisymbrium officinale* for *Senecio vulgaris* as *Verbena foemina*.

Brunfels has been credited by E. L. Greene with having commenced the reform of botanical nomenclature by rejecting certain generic names composed of two words in favour of others consisting of a single word. Actually he seems to have thought one name as good as another, and to have used them more or less indifferently. In many cases he adopted one name in the text and a different one for the illustration. Thus for the Wood Sanicle he used both *Sanicula* (text) and *Diapensia* (figure), for Fumitory, *Capnos* and *Fumus terrae*, for the Germander Speedwell *Gamandraea* and *Chamaedrys*.

The next botanist who requires mention was Leonard Fuchs, a Bavarian physician who in 1542 published his *Historia Stirpium*, a fine volume containing over 500 excellent wood engravings of plants, for which he had employed two draughtsmen and the best engraver in Strasbourg. In order to save space he condensed the descriptions, and to make them intelligible supplied a glossary of botanical terms, including such words as internodium, scapus, apices (anthers), filamenta (filaments and styles). He proposed several new genera, including *Digitalis*. In reading Fuchs' *Historia* it is important to remember that he used some technical terms in a very different sense from their modern application. Thus by "genera" he meant what are now called species and varieties, and some of the genera bore binary names: thus *Vitis vinifera* (the vine), *Vitis alba* (white bryony) and *Vitis nigra* (Clematis) were not three species of *Vitis* but three different genera for him.

Contemporary with Fuchs is Hieronymus Tragus (1498-1554), the third great German botanist. He was the first who actually described plants. He had no money to employ draughtsmen and engravers, so was compelled to write descriptions of the less known plants in his book, so that his readers might be able to identify them. Illustrations were added, however, in the later editions. Tragus was the first to recognise the stamens and pistil as definite organs and thus inaugurated the scientific study of the flower. As far as nomenclature is concerned Tragus followed on the lines then in

vogue. He does not seem to have attached special importance to the Latin names which are sometimes mere translations of the German. Fuchs convinced that the genus *Plantago aquatica* is identical with *Alisma* of the Greeks uses the latter name in his text. Tragus however restored the original name *Plantago aquatica*, apparently because it corresponded with the German name "Wasser Wegerich" at the same time pointing out that the plant should not be placed among the other plantains. "Haec Germanis Wasser Wegerich, id est, *Plantago aquatica* (tametsi inter *Plantagines* non videatur connumeranda)".

An interesting example of Tragus substituting a binary generic name for a Fuchsiian name is *Digitalis* for which he substituted *Campanula sylvestris*. His remarks show well the idea prevailing at the time that generic and other names could be altered if desired. "Let anyone name this plant what he will, we, in consideration of the form of the flower shall name it *Campanula sylvestris*, at least for the time being, and until a more appropriate name shall arise. There are those that call it *Digitalis*."

Up to this time names were either single, binary or sometimes composed of three words, this being due to the fact that the first two would constitute the generic name and the third the specific. There is as yet no trace of those phrase names that burdened botanists of the seventeenth and eighteenth century.

Whereas Brunfels and Fuchs figured plants and Tragus described them, Valerius Cordus (1515-44) introduced scientific terminology. Euricius Cordus, his father, had pointed out that very many plants grew in Germany that were unknown to the Greeks and Romans, and Valerius described many of them. He was the first man in history to establish many new genera, very few men between Dioscorides and Valerius Cordus made more than two or three. Cordus proposed so many that his book is a land-mark. A few of those mentioned by E. L. Greene are :—

Balsamella Cordus, now known as *Impatiens*, Coralloides (*Dentaria*), Helianthemum (*Helianthemum*), Moschatella (*Adoxa*), Oxy-coccus (*Oxycoccus*), Pneumonanthè (*Pneumonanthè*), Sagitta (*Sagittaria*).

Cordus introduced certain improvements into the classification and nomenclature of genera. He pointed out that the Ground Ivy (*Glechoma hederacea*), which was then commonly called *Hedera terrestris*, had nothing to do with the Ivy but had flowers like those of "*Chamaedrys*" [*Teucrium*] and "*Galeopsis*" [*Lamium*], thus implicitly recognising the family *Labiatae*. He proposed the new name *Chamaeclema* in place of *Hedera terrestris*.

It is interesting to note that Cordus had a certain regard for priority of names. Thus he found the name *Eupatorium* as employed by Dioscorides had been displaced by *Agrimonia*, and he proceeded to restore it.

Cordus though very young—he died at the age of twenty-nine—had a great knowledge of morphology. He agreed with Theophrastus that not everything below ground is necessarily a root, and he defined a rhizome as a “coliculus” or little stem. Inflorescences also received the first scientific treatment since the days of Theophrastus, for instance he appreciated that the fig was an inflorescence, and described it in detail. He mentioned the involucre—bracts subtending the flower. The calyx he distinguished from the corolla by its position, and united ovary, stamens and pistil under the term “flower”.

He was the first to draw attention to the peculiar habit of the Sundew, and also was the first to mention the tubercles on the roots of *Leguminosae*.

How ferns multiplied had always been a mystery to the Ancients. Cordus writes “*Trichomanes* grows abundantly on moist shaded rocks, although it produces no stem or flower or seed. It reproduces itself by means of the dust that is developed on the backs of the leaves, as do all kinds of ferns : and let this statement of the fact once and for all suffice.”

In the period of 93 years from the appearance of Brunfels, *Herbarium Vivae Icones* (1530) to that of C. Bauhin's *Pinax* (1623) many new species had been described by botanists in various parts of Europe, such as Tabernaemontanus and Camerarius in Germany, Dodoens, de l'Ecluse and de l'Obel in the Netherlands, d'Alechamps in France, Turner in England, Mattioli, Colonna and Prospero Alpino in Italy, and Monardes in Spain. Each of these used whatever names pleased him, so that botanical nomenclature became gradually more and more confused. This is well illustrated by the synonymy of the species now known as *Plantago media*. Various authors from Brunfels onwards had given it at least seven different names, including *P. major*, *latifolia*, *media*, *major incana*, *minor incana*.

Order was brought into systematic botany and nomenclature by Caspar Bauhin, who in 1623 published his *Pinax Theatri Botanici*. This was the first nomenclator, or list of all known plants with their synonyms. It was in a way the forerunner of the *Index Kewensis*. It was a bibliography and a concordance of previous work on Systematic Botany, and even at the present day it is very useful in identifying the species figured or described by the sixteenth century herbalists from Brunfels onwards, since Linné generally cites the names adopted by Bauhin.

Bauhin had projected a much larger work with descriptions and figures, but only a sample of this was published under the title *Prodromus Theatri Botanici* (1620). Bauhin gave the name “*Plantago latifolia incana*” to what is now called *P. media*. Like many of his names of species this was plurinominal, and partook more of the nature of a diagnostic phrase than of a name. As time went on and many more species of some genera became known, these diagnostic



phrases became very cumbersome, remaining in vogue up to the time of Linné.

Another outstanding botanist, who lived later in this century, was John Ray (1628-1705). His chief work was the *Historia Plantarum* (1686-1704), which included full descriptions of all the plants known at that time. The number of standard books included in his list of abbreviated citations was well over a hundred, which gives some indication of the progress that had been made since the appearance of C. Bauhin's *Pinax*. Some of his important contributions to taxonomy and morphology may be mentioned in passing. He was the first to distinguish Monocotyledons and Dicotyledons, and perceived that some seeds had endosperm and that others had none. Undoubtedly Ray's system was the most natural one up to the time of Linné.

Another great systematist of the late seventeenth century was Tournefort (1656-1708). He has been regarded as the founder of genera in the plant kingdom. But it has already been shown that he cannot properly be given that distinction. The first systematic enumeration of genera is that in Caspar Bauhin's *Pinax*. There is a great difference between the work of Bauhin and that of Tournefort. Bauhin only gave names to genera, without descriptions, but distinguished the species by diagnostic phrases. Tournefort on the other hand provided his genera with names, descriptions and figures. Tournefort's chief work "*Institutiones Rei Herbariae*" (1700), has great method in it, every class being divided into sections, these into genera and these again into species. Most of Tournefort's generic names are uninominal but some are binominal such as *Ruta Muraria*, *Caryophyllus aromaticus* and *Auricula Ursi*. The two former might be mistaken for species of the very different genera *Ruta* and *Caryophyllus*, which he also recognises. Tournefort's theories do not appear as advanced as Ray's and his system was certainly more artificial.

As already indicated, Nomenclature at this time had become extremely cumbersome, as it was quite usual for species to be known by long sentences. Linné in 1753 replaced each of these diagnostic phrases by a binary name and this reform was found to be so convenient that it met with almost immediate acceptance. Carl Linné (1707-1778), a Swede, was born at Rashult where his father was a pastor. It is usual to say that a new era in the history of botany begins with him, but it is far better, following Sachs, to regard him as the last link of a chain of botanists such as Ray, Tournefort, etc., since his views are in the main the same as theirs. Linné systematised what had gone before him, and this placed him in a unique position. He recognised the functions of the stamens, and pistils, and introduced a new scheme of classification, known as the "Sexual System of Linnaeus," based on their number, relative position, etc. This was at least a convenient classification albeit an artificial one. He introduced various terms still in use such as monoecious and dioecious.

We are indebted to Linné for three great services.

1. His introduction of a consistent binary nomenclature for species, each species bearing only two names, the first being the generic and the second the specific.

2. The introduction of his Sexual System which for the first time supplied a thoroughly workable and convenient scheme for the arrangement of genera.

3. The publication of the "Species Plantarum," ed. 1 (1753), in which he repeated Caspar Bauhin's feat of one hundred and thirty years earlier of restoring order to Systematic Botany.

Linné thus cleared the ground for systematic botany, and it is therefore essential that our present system of Nomenclature should date from the year 1753, the year in which he published the first edition of the "Species Plantarum." Inspection of this work shows to what a large extent (as regards European plants) it was based on Bauhin's Pinax. Under the accepted binominal Linné gave only the more important synonyms. Thus when he referred to Bauhin's Pinax he considered it unnecessary to quote also the older works of Brunfels, Fuchs, Mattioli and others which Bauhin had already cited.

Linné was well aware of the artificial nature of his Sexual System, and had even published a fragmentary sketch of a Natural System, but the introduction of our present "Natural System" dates from the year 1789, when A. L. de Jussieu published his celebrated "Genera Plantarum" in which many of our modern "Natural Families" are defined, though sometimes under different names.

After the time of Linné Systematic Botany made great progress. Nomenclature and Classification were far more stabilised, and the way was prepared for the numerous taxonomic systems that were to follow. The names of natural plant families recognised by Linné were mainly descriptive such as *Coniferae*, *Umbellatae* and *Asperifoliae*. Jussieu, on the other hand, employed many plurals of generic names such as *Junci* and *Polemonia*, thus emphasising the fact that his families were aggregates around a typical genus. As this plural form was misleading, De Candolle introduced a variety of distinctive endings for family names including *-aceae*, *-ineae*, *-arieae*, *-ideae*. Lindley adopted the uniform termination *-aceae* for family names, and this is now accepted with the exception of eight well known names conserved under the International Rules e.g. *Labiatae*, *Compositae*.

In the year 1821 Steudel's "Nomenclator Botanicus" appeared. It consisted of a list of the names of all flowering plants then known with their synonyms. A second edition appeared in the year 1840. It was an extremely useful work of reference and, as will be seen later, was of great service in the preparation of the *Index Kewensis*. Another important work which was commenced in 1818 and continued up to 1873 was De Candolle's *Prodromus*; an enumeration with descriptions of all the known Dicotyledons based on a definitely natural system.

Various other systems were put forward during the nineteenth century, amongst them that of Bentham and Hooker's *Genera Plantarum*, a system that is still standard and still very largely followed. The first volume appeared in 1862 and the last in 1883.

From the year 1840 to 1880 or thereabouts very many new plants were described and there was no complete index of them, so it was quite possible for the same plant to be named and described more than once. To give a single example: Linden & Planchon in 1863 printed descriptions of eleven species from Colombia and Venezuela, not realising that in 1854 and 1858 these very same species had been described under other names in a Russian botanical periodical by Turczaninow.

Thus it came about that in 1881 Sir William Thiselton-Dyer after a Committee Meeting at the Linnean Society first broached the subject of the *Index Kewensis*. He stated that Charles Darwin had received so much help from Steudel's *Nomenclator*, then forty years old, that he was prepared to devote a sum of money annually for several years if a suitable person could be found to compile a list of the vast number of names that had been published since its issue. The task was entrusted to Dr. B. Daydon Jackson, who had established his reputation as a bibliographer by the publication of his "Guide to the Literature of Botany". At his suggestion the scope of the work was enlarged to include all the names of genera and species of flowering plants published from the time of Linné down to the end of the year 1885, with references to their places of publication. To quote his own words "I emphasized the desirability of giving references to all the names pointing out that a work on Steudel's plan, based solely on synonymy, would in no long time become out of date, whilst an enumeration of genera and species, with their place of publication during one hundred and fifty years, would be of permanent value." Dr. Jackson and his assistants carried out the work in the Kew Herbarium, where the continuation of the *Index* is still in progress. Quinquennial supplements are published by the Clarendon Press, and the latest, Supplement VI, appeared in 1926. One of the chief sources from which the original *Index* was compiled was the interleaved copy of Steudel's *Nomenclator* which had been kept more or less up to date at Kew. Other sources of help were Richter's *Codex Linnaeanus* for the Linnean names. De Candolle's *Prodromus* and *Monographiae*, Kunth's *Enumeratio*, Walper's *Repertorium* and *Annales*, and various floras of large areas, such as Bentham's *Flora Australiensis*, Hooker's *Flora of British India*, Martius' *Flora Brasiliensis* and Boissier's *Flora Orientalis*. By experiment Dr. Jackson found that up to 1850 practically all names were accounted for in the main works consulted. From that year onwards up to the end of 1885 the new names were extracted from the original works themselves. The indication of the geographical distribution of the species was revised by Sir Joseph Hooker.

The *Index* was a monumental work and took about ten years to compile and revise. The publication was undertaken by the Clarendon Press. It appeared in four fascicles making two thick volumes (1893-95). The first supplement covering the period 1886-1895 was prepared by Messrs. Th. Durand and B. Daydon Jackson and published in Brussels. Succeeding supplements, one every five years, are prepared at Kew. It is estimated that about four hundred periodicals are searched for new names for each supplement in addition to all the independent works published during the particular five years. There are usually over thirty thousand new names in each supplement.

The scope of the original *Index* is rather different from that of the present supplements. In the main work, generic reductions were made in accordance with Bentham & Hooker's *Genera Plantarum*, and reductions of species on the authority of various standard floras and monographs. Such reductions, however, only represent the views of the particular author or authors. It should also be borne in mind that the reduction of one species to another in the *Index Kewensis* did not necessarily imply that the two were regarded as being exactly the same. As varieties were not indexed any species which was treated as a variety of another was reduced to it in the *Index* in precisely the same way as if the two had been strictly identical. In the first, second and third supplements (1886-1905) generic reductions were made in accordance with the *Genera Plantarum*. When the fourth supplement was in preparation, however, it was realised that the chief value of the Supplements was as an *Index* not as a *Nomenclator*, and from the fourth supplement onwards all new names were printed in the same type, no reductions being made. The use of the sign = might have led to misconception, so it was replaced by a colon.

When the original *Index* was compiled, the year 1735 (or 1737) was generally accepted as the starting point for the nomenclature of genera, and 1753 for that of species. But in 1905 at the International conference held at Vienna, the year 1753 was fixed as the starting point for both genera and species.

In looking through the names in the *Index Kewensis* and considering the reductions made therein, it was very obvious that the same plant was frequently known by several names, and it was not an easy matter to find out the correct name, since different botanists held opposing views. To meet these needs the International Rules of Botanical Nomenclature were evolved with the result that there is now far greater uniformity.

These rules were drawn up at the International Botanical Congress in 1905 at Vienna. A few additions and modifications were introduced in 1910 at the Brussels Congress. This is the last formal International Congress that has taken place. One was due in London in 1915 but was postponed owing to the War. Since then two Conferences have been held, the one in London in 1924—an

Imperial Conference—and an International Congress of Plant Sciences at Ithaca in 1926, neither of which assumed legislative functions. The next International Botanical Congress is to be held at Cambridge in 1930 and, being the true successor to the Brussels Congress of 1910, it will have power to enact legislation.

The Rules at present consist of sixty Articles and forty-six Recommendations. Perhaps the most important Rules are those which deal with publication, priority and stability of names.

No name is recognised as valid unless it is published with a description or a reference to a former description under another name.

Of two competing names for the same group the one which was first published is the one to be accepted.

When a species is transferred from one genus to another the original specific name is retained unless it duplicates a valid name.

In order to avoid disturbing changes in the nomenclature of well known genera by the strict application of the Rules, a list was drawn up of well known generic names which are to be retained as exceptions, e.g. *Capsella*, *Luzula* and *Taraxacum*.

Since the Brussels Congress it has been discovered that several important generic names, such as, *Combretum* and *Nuphar* will have to be superseded on account of earlier names. It is hoped, however, that these and others will be added to the list of conserved names at the coming International Congress in 1930.

The following is a list of works dealing with the subject of this paper.

- THEOPHRASTUS,—Enquiry into Plants, ed. Hort (London and New York, 1916).  
DIOSCORIDES,—Materia Medica, ed. Sprengel (Leipsig 1829-30).  
BRUNFELS, O.—Herbarium Vivae Icones (1530).  
FUCHS, L.—Historia Stirpium (1542).  
CORDUS, VALERIUS,—Historia Stirpium (1561).  
BAUHIN, C.—Pinax Theatri Botanici (1623).  
RAY, J.—Historia Plantarum (1686-1704).  
TOURNEFORT, J. P. DE —“ Institutiones Rei Herbariae ” (1700).  
LINNÉ, C. VON —Species Plantarum, ed. 1 (1753); Genera Plantarum, ed. 5 (1754).  
JUSSIEU, A. L. DE —Genera Plantarum (1789).  
STEUDEL, E. G.—Nomenclator Botanicus (1821; ed. 2, 1840-41).  
CANDOLLE, A. P. DE —Prodromus Systematis Naturalis (1824-73).  
BENTHAM, G. & HOOKER, J. D.—Genera Plantarum (1862-83).  
JACKSON, B. D.—Index Kewensis (1893-95).  
INDEX KEWENSIS, Supplement 1 (prepared at Brussels 1901-1906).  
„ „ Supplements 2—6 (prepared at Kew under the auspices of the Director, 1904-1926).  
BRIQUET, J.—International Rules of Botanical Nomenclature, ed. 2 (Jena, 1912).  
SPRENGEL, K.—Geschichte der Botanik (1817-18).  
MEYER, E. H. F.—Geschichte der Botanik (1854-57).

- SACHS, F. G. J. VON—History of Botany (1530-1860), English Edition (1890).  
 GREENE, E. L.—Landmarks of Botanical History (1909).  
 ARBER, A.—Herbals, their Origin and Evolution (1912).  
 HARVEY-GIBSON, R. J.—Outlines of the History of Botany (1919).  
 SPRAGUE, T. A.—The Nomenclature of Plant Families (Journ. Bot. 1922, pp. 69-73).  
 SMITH, H. H.—Ethnobotany of the Menomini Indians (Bull. Publ. Mus. Milwaukee, 1923).  
 JACKSON, B. D.—History of the Compilation of the Index Kewensis (Journ. Roy. Hort. Soc., Lond. xlix. pp. 224-229 : 1924).
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#### XLVIII.—AFRICAN ORCHIDS, I. V. S. SUMMERHAYES.

**Eulophia chilangensis** sp. nov.; affinis *E. massokoensi* Schltr., a qua sepalis petalisque latioribus obtusioribusque et labelli lobo intermedio nudo differt.

*Herba* terrestris, erecta, 35-40 cm. alta. *Rhizoma* nondum notum. *Folia* (sub anthesi nondum omnino evoluta) linearia, acuta, rigida, 4-6 cm. longa. *Scapus* erectus, substrictus, vaginulis perpaucis lanceolatis praeditus, teres, glaber. *Racemus* laxe 13-15-florus, usque ad 23 cm. longus; bracteae lineari-lanceolatae, acuminatae, ovario pedicelloque vix duplo breviores. *Sepala* late linearia, obtusa vel subacuta, lateralia leviter falcata, 9-9.5 mm. longa, 1.5-2 mm. lata. *Petala* oblique oblonga, acuta vel apiculata, 7-8 mm. longa, 2-2.5 mm. lata. *Labellum* obpanduratum, 8 mm. longum, medio 4 mm. latum, nervis primariis 3 incrassatis e basi usque infra apicem decurrentibus, nervis secundariis basi incrassatis; calcar gracile, flexuosum, apice subdilatatum. *Columna* subteres, glabra, 3 mm. longa.

NORTHERN RHODESIA. Chilanga, 20 miles N. of Kafue River, on loam, 900 m., Oct. 1909, *F. A. Rogers* 8522.

**Eulophia anisotepala** sp. nov.; species *E. brevipetalae* Rolfe proxima, petalis oblongis, labelli disco 3-nervato recedit.

*Herba* perennis, terrestris. *Folia* sub anthesi vix evoluta, anguste linearia, ad 8 cm. longa, acutissima. *Scapus* erectus, subflexuosus, gracilis, glaber, 60 cm. altus, vaginulis paucis lanceolatis acutis instructus. *Racemus* secundus, sublaxe 16-florus, erectus, 24 cm. longus; bracteae lanceolatae, acuminatae, ovario pedicelloque multo breviores. *Flores* patentes, glabri. *Sepala* subspathulato-linearia, lateralia oblique acuta, 8-10 mm. longa. *Petala* oblique oblonga, obtusa, 5-5.5 mm. longa. *Labellum* ambitu oblongum, supra medium trilobatum, 5.5 mm. longum, medio 3 mm. latum, nervis primariis 3 incrassatis in lobo intermedio dense breviter barbatis; lobus intermedius obovatus, 2 mm. longus, vix 2 mm. latus; lobi laterales perbreves, rotundati vel obtusissimi;